

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (original): An optically-pumped laser device, comprising:
a nonionic base layer; and
an ionic layer attached to said nonionic base layer through an optical-quality interface, a cross-section through said device in a direction perpendicular to said interface having a trapezoidal shape.

Claim 2 (original): The laser device of claim 1, wherein said optical-quality interface is a diffusion-bonded interface.

Claim 3 (original): The laser device of claim 1, wherein said optical-quality interface is a layer-growth type interface.

Claim 4 (original): The laser device of claim 1, wherein all cross-sections passing through said optical-quality interface in a direction perpendicular to said interface have a trapezoidal shape.

Claim 5 (original): The laser device of claim 1, wherein said nonionic layer and said ionic layer form a laser slab, said laser slab having a bottom surface and two side surfaces, an angle between said side surfaces and said bottom surface being about 60°.

Claim 6 (original): The laser device of claim 1, wherein said nonionic layer is a YAG layer and said ionic layer is a Yb:YAG layer having a ytterbium concentration of about 15%.

Claim 7 (canceled)

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~~Claim 8 (original): The laser device of claim 1, wherein said ionic layer has an isolation groove.~~

~~Claims 9-16 (withdrawn)~~

Claim 17 (original): An optically-pumped laser slab, comprising:

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a YAG layer; and

a Yb:YAG layer attached to said YAG layer along optical-quality interface by diffusion bonding, said Yb:YAG layer having a ytterbium concentration of approximately 15%, a cross section through said laser slab in any plane perpendicular to said optical-quality interface having a trapezoidal shape, said laser slab having a bottom surface and two side surfaces tilted inwardly from the bottom surface at an angle of about 60°.

~~Claims 18-25 (previously withdrawn)~~

Claim 26 (currently amended): A laser slab for use in an optically-pumped laser, comprising:

a nonionic layer having a bottom surface and side surfaces; and

an ionic layer attached to said nonionic layer along an interface, the bottom surface of said nonionic layer having a bottom surface area greater than an interface surface area of said interface, said side surfaces of said nonionic layer funneling optical energy from said bottom surface of said nonionic layer to said interface;

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wherein said laser slab comprises first and second side walls comprising said side surfaces of said nonionic layer and first and second end surfaces extending between said side walls such that light energy entering said laser slab through said bottom surface of said nonionic layer results in emitted energy from said ionic layer reflecting at least once from said bottom surface of said nonionic layer and resulting in an output beam emitted from said end surfaces.

Claim 27 (original): The laser slab of claim 26, wherein said surface area of said bottom surface is at least about two times greater than said interface surface area.

Claim 28 (original): The laser slab of claim 26, wherein a cross-section through said nonionic layer in a direction perpendicular to said interface is trapezoidal.

Claim 29 (original): The laser slab of claim 26, wherein said side walls are so shaped as to provide rounded profiles in a cross-section in a direction perpendicular to said interface.

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Claim 30 (original): The laser slab of claim 26, wherein said side walls are so shaped as to provide parabolic profiles in a cross-section in a direction perpendicular to said interface.

Claim 31 (original): The laser slab of claim 26, wherein said ionic layer has an isolation groove.

Claim 32 (new): An optically-pumped laser device, comprising:

a nonionic base layer having a thickness of about 3.25 mm; and
an ionic layer attached to said nonionic base layer through an optical-quality interface and having a thickness of about 0.25 mm, a cross-section through said device in a direction perpendicular to said interface having a trapezoidal shape.

Claim 33 (new): The laser device of claim 1 wherein said ionic layer comprises a top surface, said nonionic base layer comprises a bottom surface, and said laser device comprises first and second side surfaces and first and second end surfaces, said first and second end surfaces extending from said top surface of said ionic layer to said bottom surface of said nonionic base layer, said laser device accepting optical energy through said bottom surface of said nonionic base layer and directing said optical energy to said ionic layer such that energy is emitted from said ionic layer, reflected from said top surface of said ionic layer and said bottom surface of said nonionic layer, and emitted in an output beam from said first and second end surfaces.

Claim 34 (new): The laser device of claim 17 wherein said Yb:YAG layer comprises a top surface, said YAG layer comprises a bottom surface, and said laser device comprises first and second side surfaces and first and second end surfaces, said laser device accepting optical energy through said bottom surface of said YAG layer and directing said optical energy to said Yb:YAG layer such that energy is emitted from said Yb:YAG layer, reflected from said top surface of said Yb:YAG layer and said bottom surface of said YAG layer, and emitted in an output beam from said first and second end surfaces.

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B3 Claim 35 (new): An optically pumped laser device comprising:

a nonionic base layer having a bottom surface for accepting input optical energy;
an ionic layer adapted to accept said input optical energy and emit output optical energy, said ionic layer being attached to said nonionic base layer along an optical-quality interface, said ionic layer having a top surface opposing said bottom surface of said nonionic base layer; and

first and second side surfaces and first and second end surfaces, each of said first and second side surfaces and said first and second end surfaces extending between said bottom surface of said nonionic layer and said top surface of said ionic layer, said first and second side surfaces and said first and second end surfaces being provided at angles with respect to said bottom surface of said nonionic base layer such that a surface area of said optical interface is less than a surface area of said bottom surface of said nonionic base layer and cross-sections through said nonionic base layer and perpendicular to said optical-quality interface are trapezoidal, said output optical energy reflecting from said top surface of said ionic layer and said bottom surface of said nonionic layer and being emitted from said end surfaces.